

BELARUSIAN STATE UNIVERSITY

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Establishment of Education  
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## **ACTUAL ENVIRONMENTAL PROBLEMS**

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graduates, master and PhD students

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**THE ROLE OF ESTABLISHING THE MAXIMUM ADMISSIBLE  
CONCENTRATION OF MEDICINAL SUBSTANCES  
AT PHARMACEUTICAL ENTERPRISES**

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With the growth of drug production volume, hygienists and occupational therapists are getting into the following tasks :

1. Severization of quality requirements applied in industrial environment at chemico-pharmaceutical enterprises;
2. Implementation of hygiene standards to ensure healthy and safe working conditions at the production of potentially dangerous chemicals and compounds.

Specifics of drug production is largely determined by its preproducts and end products. Preproducts are substances obtained at particular production stages. End products are medicinal drugs by itself.

In the working area concentrations of these compounds may exceed the permitted levels. It is especially true for operations related to loss of containment, loading and unloading of bulk solids, technological sample selection.

Inhalational penetration of toxicants is of greater danger, as most of the air cells surface is actively washed by blood, which facilitates rapid absorption of toxicants and their conveying to the vital centers. Consequently, in the chemical and pharmaceutical industry the most common occupational diseases are:

- rinolarongofarengit (a disease of the mucous membranes of the nose, throat, larynx),
- erosion (ulcer) and perforation of the nasal septum,
- tracheitis,

- bronchitis,
- pulmonary fibrosis (degeneration of lung tissue).

Due to technological, economic and some other difficulties, it is not possible to completely eliminate adverse factors from the production environment. Introduction of maximum permissible concentration (MPC) would limit the adverse effects chemical compounds make on human and prevent occupational diseases. The chemicals that cause adverse health effect may be present in the working area in the form of gases, aerosols and vapor mixture.

Established MPC are concentrations, which effect cannot cause diseases or abnormalities in health status detected by modern methods of research; it concerns not only the entire length of service, but also the late periods of life of present and future generations.

Justification for MPC level and other preventive measures requires the following information to be obtained:

1. Substance production and use condition;
2. Data on the chemical structure, physical and chemical properties;
3. Substance toxicity and its impact after a single exposure on the body;
4. Substance cumulative capacity after repeated exposure on the body;
5. Study of local irritant and skin-resorptive effects of substance;
6. Threshold of harmful effect while chronic substance admission into the body.

Thus, compliance with hygiene standards will provide health safety of workers with no risk.

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